



The "Ripple Effect"



Basic Principles of Secondary/Cumulative Impacts;
Sections 4.2.7, and 4.2.8 Basis of Review.



Impact Evaluation

- **Secondary Impacts** — Pursuant to paragraph 4.1.1(f), BOR, an applicant must provide reasonable assurances that a regulated activity will not cause adverse secondary impacts to the water resource, as described in paragraphs (a) through (d), below. Aquatic or wetland dependent fish and wildlife are an integral part of the water resources which the District is authorized to protect under Part IV, Chapter 373, F.S. Those aquatic or wetland dependent species which are listed as threatened, endangered or of special concern are particularly in need of protection.

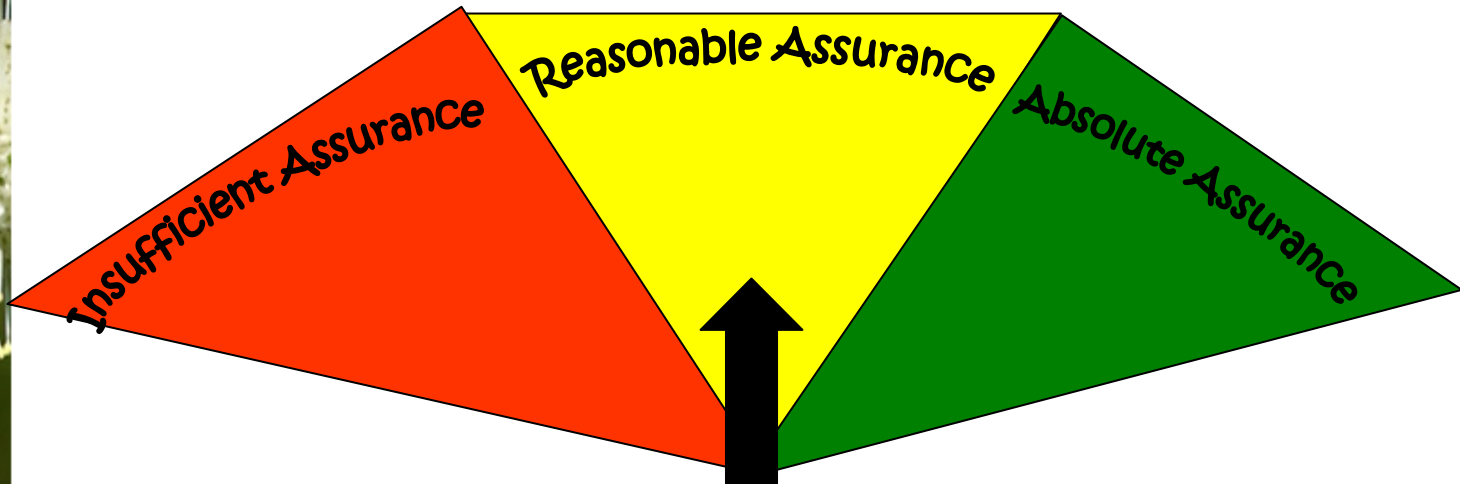
- **A) Water quality & Wetland function**
- **B) Uplands used for nesting or denning**
- **C) Archaeological Resources**
- **D) Future Activities**





Are you Reasonable?

- (A) An applicant shall provide reasonable assurance that the secondary impacts from construction, alteration, and intended or reasonably expected uses of a proposed system will not cause violations of water quality standards or adverse impacts to the functions of wetlands or other surface waters, as described in subsection 4.2.2.
 - Any idea what's reasonable?
 - Assurance Spectrum





Reasonable Assurance





Impact Evaluation

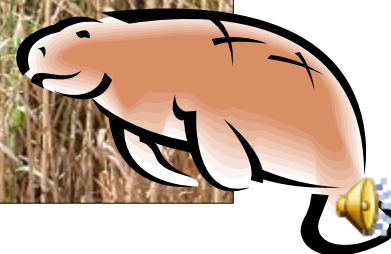
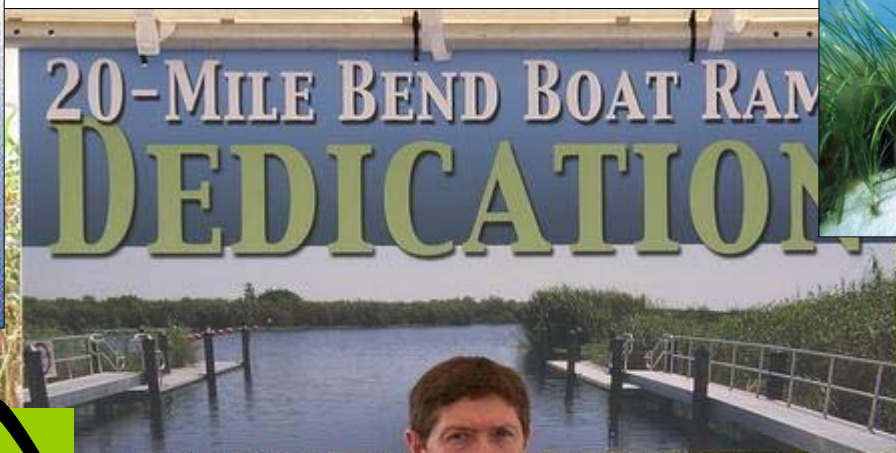
- **Direct Impact**
 - Road through wetland
- **Secondary Impact**
 - Unintended Impacted
- **Cumulative Impact**
 - Resource Reallocation





Reasonably Expected Use

Any idea what's reasonably expected to use this system?





Reasonably Expected Uses

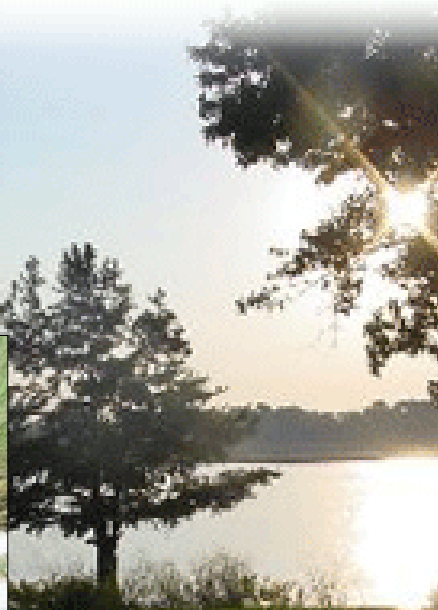
- What if....
only canoes were allowed to use the ramp?





Water Quality Standards

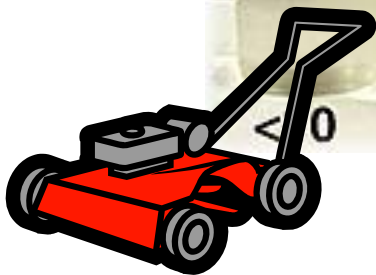
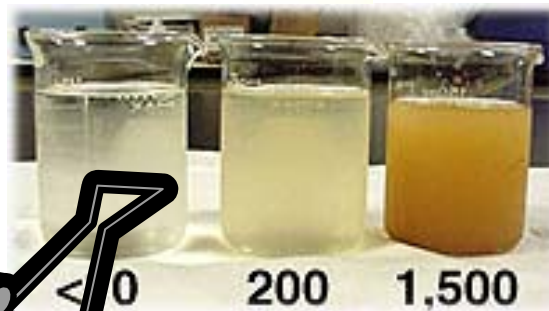
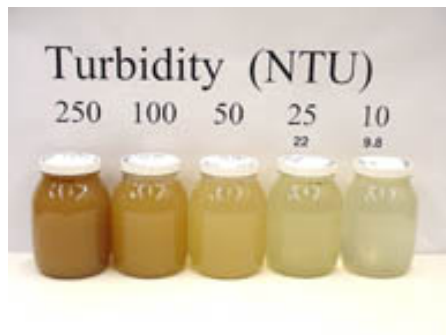
- How might a system affect Water Quality?





Water Quality Standards

- Is it reasonable to anticipate all home owners want the greenest yard around?



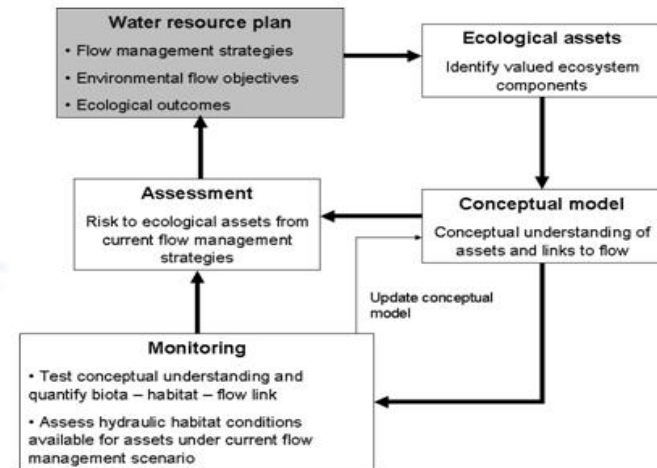


Water Quality & Wetland Function

- Short term versus Long term water quality issues....



Water Quality & Wetland Function: Control Mechanisms





Secondary Impacts

- **Wildlife Corridors**
 - **Environmental Conditions for Permit Issuance:**
 - A Regulated Activity will not cause adverse secondary impacts to the water resource...
 - Provide Reasonable Assurance that Aquatic or wetland dependent species are protected





Wildlife corridors



Patricia White/Defenders of Wildlife





Wildlife Corridors

- Proper signage and barriers to direct animal movement are encouraged!!



Uplands Used for Nesting / Denning

- ...Reasonable assurance that construction, alteration, & intended or reasonably expected use of a system will not adversely impact the ecological value of uplands to aquatic or wetland dependent listed animal species or enabling existing nesting or denning





Archaeological / Historical Resources

- In addition to evaluating the impacts...in, on, or over wetlands or other surface waters...the District will consider any other relevant activities closely linked & causally related to any proposed dredging or filling which will cause impacts to significant historical & archaeological resources



Future Activities

- **D)....Reasonable assurances that future activities will not result in water quality violations or adverse impacts to the functions of wetlands & other surface waters...**
 - **Additional phases or Expansion of proposed system**
 - **Onsite & offsite activities...closely linked and causally related to the proposed system**





Future Activities





Future Activities



"We're waiting for the city to come to us..."



Cumulative Impacts

- Also Known As...Why do I need to worry about what the other guy might Do?
- Applicant must provide reasonable assurances that a regulated activity will not cause *unacceptable cumulative impacts* upon wetlands and other surface waters within the same drainage basin as the regulated activity for which a permit is sought

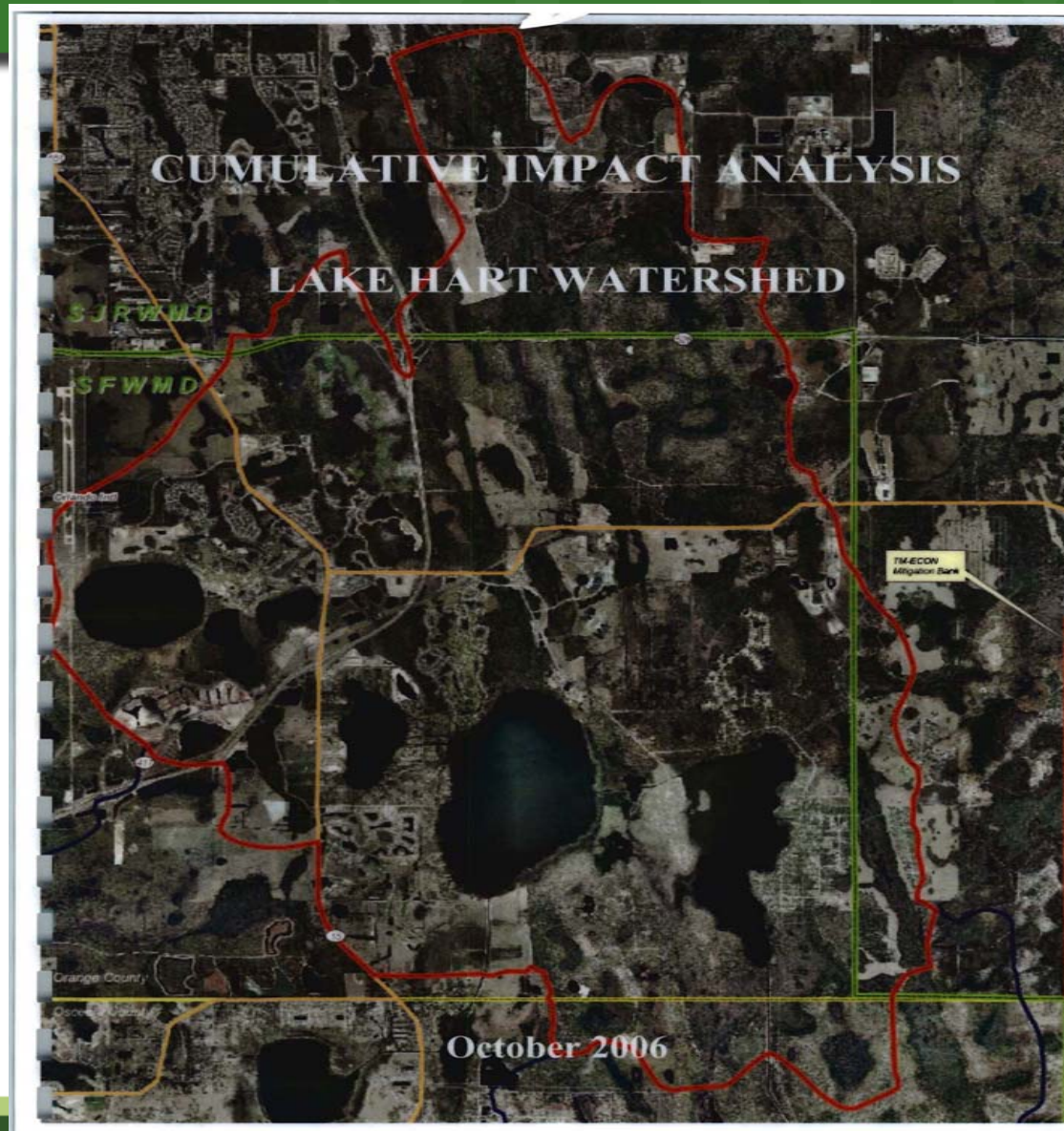


Cumulative Impact

- This impact evaluation is done assuming everyone gets an equitable bite of the pie



Cumulative Impact



Usually more than a couple of paragraphs

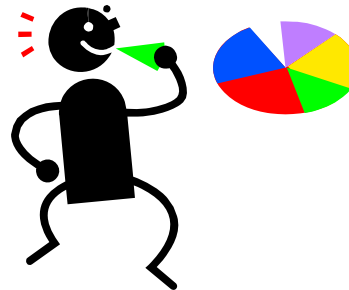
TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 INTRODUCTION	1
2.0 PURPOSE AND SCOPE	2
3.0 WATERSHED CHARACTERISTICS	3
4.0 COMPONENTS OF ANALYSIS	4
4.1 Lake Hart Watershed Aerial Photography	5
4.2 Existing Land Use	5
4.3 Wetland Types	8
4.4 FEMA Special Flood Hazard Area	9
4.5 Future Land Use	9
4.6 Existing and Potential Conservation Lands	9
4.7 DRIs and Other Developments	11
4.8 Levels of Wetland Protection	11
5.0 SUMMARY OF FINDINGS	12
5.1 Analytical Process	12
5.2 Analytical Assumptions	13
5.3 Analytical Results	13
6.0 SUMMARY	15
LITERATURE CITED	16



Unacceptable Cumulative Impacts

- What does it look like?
- ...Considered unacceptable when the proposed system, considered in conjunction with the past, present, and future activities...would result in a violation of state water quality standards or significant adverse impacts to functions of wetlands or other surface waters...within the same drainage basin when considering the basin as a whole...



Unacceptable Cumulative Impact!

- **Unacceptable Cumulative impacts occur when someone wants more than their fair share...**



Cumulative Impact – Heads Up Points

- 1.) Do the Analysis and avoid the RAI question
- 2.) There seems to be a fairly strong correlation between the depth and degree of Analysis versus the Amount of Impact proposed
- 3.) Don't forget functionality
- 4.) Preservation

Questions?

